

## WE CLAIM:

1. Method of manufacturing a stretched mechanical fastening web laminate (1) comprising a thermoplastic web layer (13) having two major surfaces, one of the major surfaces bearing a multitude of male fastening elements (14) suitable for engagement with a corresponding female fastening material, and on its other major surface a fibrous web layer (11), said method comprising the steps of
  - (i) providing the fibrous web layer (11) having an initial basis weight,
  - (ii) passing the fibrous web layer (11) through a nip formed by two rolls (101), (103), one of them having cavities (120) that are the negatives of a plurality of male fastening elements (14), introducing a molten thermoplastic resin into the cavities (120) in excess of an amount that would fill the cavities (120) which excess forms the thermoplastic web layer (13), allowing the resin to at least partially solidify and stripping of a precursor web laminate (10) thus formed comprising the fibrous web layer (11) and the thermoplastic web layer (13) bearing a plurality of male fastening elements (14), from the cylindrical roll (103) having cavities (120) whereby the thermoplastic web layer (13) has an initial thickness and an initial hook density, and
  - (iii) stretching the precursor web laminate (10) monoaxially or biaxially thereby decreasing the basis weight of the fibrous web layer (11) and the thickness of the thermoplastic web layer (13) from their respective initial values to provide a stretched mechanical fastening laminate (1) having a basis weight of less than  $100 \text{ g} \cdot \text{m}^{-2}$ .
2. Method of manufacturing a stretched mechanical fastening web laminate (1) comprising a thermoplastic web layer (13) having two major surfaces, one of the major surfaces bearing a multitude of male fastening elements (14) suitable for engagement with a corresponding female fastening material, and on its other major surface a fibrous web layer (11), said method comprising the steps of

- 5 (i) extruding the thermoplastic web layer (13) bearing on one major surface a plurality of elongate spaced ribs in machine direction (MD) with the cross-sectional shape of the ribs essentially corresponding to the cross-sectional shape of the male fastening elements (14) to be formed whereby the thermoplastic web layer (13) has an initial thickness,
- 10 (ii) providing the fibrous web layer (11) having an initial basis weight,
- (iii) extrusion-laminating the fibrous web layer (11) to the major surface of the thermoplastic web layer (13) opposite to the major surface bearing the elongate spaced ribs, thus providing a precursor web laminate (10),
- 15 (iv) slitting the ribs in cross-direction (CD) at spaced locations to form discrete portions of the ribs in CD with a width essentially corresponding to the desired length of the male fastening elements (14) to be formed, and stretching the precursor web laminate (10) monoaxially or biaxially thereby decreasing the basis weight of the fibrous web layer (11) and the thickness of the thermoplastic web layer (13) from their respective initial values to provide a stretched mechanical fastening laminate (1) having a basis weight of less than
- 20 100 g·m<sup>-2</sup>.
- 25 3. Method according to claim 1 where the mechanical fastening elements or the elongate spaced ribs, respectively, are subjected prior to or after stretching to thermal, mechanical or radiation energy.
4. Method according to claim 1 wherein the fibrous web layer (11) has an initial basis weight of between 10 and 400 g·m<sup>-2</sup>.
- 30 5. Method according to claim 1 wherein the fibrous web layer (11) comprises one or more nonwoven materials.

6. Method according to claim 5 wherein the fibrous nonwoven web layer (11) is made by airlaying, spunbonding, spunlacing, bonding of melt blown webs and bonding of carded webs.
- 5      7. Method according to claim 5 wherein the fibrous nonwoven web layer (11) comprises a plurality of filaments selected from a group comprising natural fibers, spun yarn fibers, fibers of nylon, polyamides, polyesters or polyolefins, core-sheath bicomponent fibers, monocomponent fibers or any combination of these.
- 10      8. Method according to claim 7 wherein the filaments of the fibrous nonwoven web layer (11) exhibit an average titer from 0.5 to 10 dtex.
- 15      9. Method according to claim 7 wherein the initial density of male fastening elements (14) of the precursor web laminate (10) is between 10 and 5,000 cm<sup>-2</sup>.
- 20      10. Method according to claim 7 wherein the initial thickness of the thermoplastic web layer (13) of the precursor web laminate (10) is between 10 and 750 µm.
- 25      11. Method according to claim 7 wherein the thermoplastic web layer (13) of the precursor web laminate (10) comprises a thermoplastic polymer selected from the group comprising polyesters, polyamides and polyolefins.
12. Method according to claim 7 wherein the male fastening elements (14) of the precursor web laminate (10) comprise a stem projecting from the exposed surface of the thermoplastic web layer (13).

13. Method according to claim 11 wherein the stems of the male fastening elements (14) of the precursor web laminate (10) comprise an enlarged section which is positioned at their end opposite to the surface of the thermoplastic web layer (13).  
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14. Method according to claim 12 wherein the enlarged portions form hooks, T's, J's or mushroom heads.
- 10 15. Method according to claim 11 wherein precursor web laminate (10) is stretched monoaxially in machine-direction (MD) or cross-direction (CD) so that the stretch ratio of the resulting stretched mechanical fastening laminate (1) relative to the precursor web laminate (10) is between 1.5:1 to 10:1.
- 15 16. Method according to claim 1 wherein the precursor web laminate (10) is stretched sequentially or simultaneously biaxally in CD and MD so that the stretch ratio of the resulting stretched mechanical fastening laminate (1) relative to the precursor web laminate (10) in CD and MD is, independently from each other, between 1.1 to 10:1.  
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17. Method according to claim 16 wherein the product of the stretch ratio in MD times the stretch ratio in CD is between 2:1 and 35:1.
- 25 18. Method according to claim 15 wherein stretching in a first direction is obtained by passing the precursor web laminate in the direction of stretch over rollers of increasing speed.
19. Method according to claim 16 wherein the precursor web laminate (10) is simultaneously biaxially stretched in a flat film tenter stretching apparatus.  
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20. Method according to claim 16 wherein the fibrous web layer (11) comprised in the stretched mechanical fastening laminate (1) has a basis weight of from 1 to 30 g·m<sup>-2</sup>.
- 5      21. Method according to claim 20 wherein the ratio of the initial basis weight of the fibrous web layer (11) to the basis weight of the fibrous web layer comprised in the stretched mechanical fastening web laminate (1) is between 3 - 40.
- 10     22. Method according to claim 20 wherein the stretched thermoplastic web layer (13) has a thickness of between 5 – 25 µm.
- 15     23. Method according to claim 22 wherein the ratio of the initial thickness of the thermoplastic web layer (13) of the precursor web laminate (10) to the thickness of the thermoplastic web layer (13) of the stretched mechanical fastening web laminate (1) is between 3 - 40.
- 20     24. Method according to claim 20 wherein the density of the male fastening elements (14) of the stretched mechanical fastening web laminate (1) is between 1 and 2,500 cm<sup>-2</sup>
- 25     25. Method according to claim 24 wherein the density of the male fastening elements (14) of the stretched mechanical fastening web laminate (1) is between 2 and 200 cm<sup>-2</sup>, more preferably between 4 – 150 cm<sup>-2</sup> and especially preferably between 5 – 80 cm<sup>-2</sup>.
- 30     26. Method according to claim 24 wherein the stretched mechanical fastening web laminate (1) exhibits a tensile strength in MD as measured according to DIN EN ISO 527 of at least 15 N/25mm.
27. Method according to claim 24 wherein portions of the stretched mechanical fastening web laminate (1) are obtained by cutting it in CD.

28. Stretched mechanical fastening web laminate (1) obtainable by a method according to claim 24, said stretched mechanical fastening web laminate comprising a thermoplastic web layer (13) having two major surfaces, one of the major surfaces bearing a multitude of male fastening elements (14) suitable for engagement with a corresponding female fastening material, and on its other major surface a fibrous web layer (11), the stretched mechanical fastening web laminate (1) having been stretched to provide a basis weight of less than  $100 \text{ g m}^{-2}$ .
- 10 29. Stretched mechanical fastening web laminate (1) according to claim 28 having a density of the male fastening elements (14) of between 1 and  $2,500 \text{ cm}^{-2}$ .
- 15 30. Stretched mechanical fastening web laminate (1) according to claim 29 having a density of the male fastening elements (14) of between 2 and  $200 \text{ cm}^{-2}$ , more preferably between  $4 - 150 \text{ cm}^{-2}$  and especially preferably between  $5 - 80 \text{ cm}^{-2}$ .
- 20 31. Stretched mechanical fastening web laminate (1) according to claim 28 wherein the thermoplastic web layer (13) has a thickness of between  $5 - 25 \mu\text{m}$ .
- 25 32. Stretched mechanical fastening web laminate (1) according to claim 28 having a tensile strength in MD as measured according to DIN EN ISO 527 of at least  $15 \text{ N/25 mm}$ .
- 30 33. Disposable absorbent article comprising a portion of the stretched mechanical fastening web laminate (1), said portion being obtainable by the method of claim 27.